CLAIMS

What is Claimed is:

1. In a wireless communication system comprising a plurality of LAN radios utilizing IP packet communication, a method comprising the steps of:

a) providing at least a first LAN radio, a second LAN radio and a third LAN radio, wherein said first LAN radio and said second LAN radio are not within range of each other, but are each within range of said third LAN radio;

b) broadcasting a periodic update message from said first LAN radio comprising information that said second LAN radio is not within range of said first LAN;

c) receiving said first LAN radio periodic update message with said third LAN radio;

d) determining that said first LAN radio and said second LAN radio are within range of said third LAN radio;

e) updating a database of said third LAN radio with route information to indicate a route between said first LAN radio and said second LAN radio through said third LAN radio.

2. The method of Claim 1, further comprising the step of transmitting said route information from said third LAN radio to said first LAN radio.

3. The method of Claim 2, further comprising the step of transmitting said route information from said third LAN radio to said second LAN radio.

4. The method of Claim 1, further comprising the step of assigning said first LAN radio, said second LAN radio and said third LAN radio a role based multicast IP address corresponding to a particular role within a group utilizing the communication system.

5. The method of Claim 4, wherein said group utilizing the communication system is a military organization.

6. The method of Claim 1, wherein said step of broadcasting said periodic update message comprises broadcasting role based IP addresses corresponding to LAN radios expected to be within range of said first LAN radio but are not within range of said first LAN radio.

7. The method of Claim 1, wherein said step of broadcasting said periodic update message comprises broadcasting role based IP addresses corresponding to LAN radios that are within range of said first LAN radio.

8. The method of Claim 2, further comprising the step of transmitting a route confirmation message from said first LAN radio to said third LAN radio.

9. The method of Claim 2, further comprising the step of transmitting a subsequent periodic update message comprising route confirmation information.

10. The method of Claim 4, wherein the communication system includes a fourth LAN radio that is not within range of said first LAN radio and said second LAN radio and is within range of said third LAN radio, further comprising the steps of:

a) broadcasting a route discovery message from said first LAN radio;

b) receiving and transmitting said route discovery message with said second LAN radio and said third LAN radio;

c) receiving said route discovery message with said fourth LAN radio;

d) sending a route confirmation message along said discovered route to said first LAN radio; and

e) sending a message from said first LAN radio to said fourth LAN radio along said discovered route.

11. The method of Claim 10, further comprising the step of discovering all routes for the role based multicast IP addresses.

12. The method of Claim 11, further comprising the step of establishing a bi-directional route between said first LAN radio and said fourth LAN radio.

13. In a wireless communication system comprising a plurality of LAN radios, a method of routing messages comprising the steps of:

a) assigning role based multicast IP addresses to each of the LAN radios corresponding to specific roles within a group using the communication system;

b) sending messages between LAN radios that are within range of each other directly to a receiving LAN radio;

c) sending messages between LAN radios that are within k hops of each other by extracting route information from a routing table database established from

the specific roles within the group and periodic update messages sent by the LAN radios; and

d) sending messages between LAN radios that are more than k hops from each other by sending route discovery messages and applying ad hoc multicast routing protocols.

14. The method of Claim 13, wherein said periodic update messages comprise information about which LAN radios are within range.

15. The method of Claim 13, wherein said ad hoc multicast routing protocols establish routes for all role based multicast IP addresses.

16. The method of Claim 15, wherein said ad hoc multicast routing protocols establish bi-directional routes.